

Running Head: ENHANCING THE MAJOR EMERGENCY AND DISASTER
OPERATIONS PROTOCOLS FOR TUALATIN VALLEY FIRE AND RESCUE

Enhancing the Major Emergency and Disaster Operations Protocols for Tualatin Valley
Fire and Rescue
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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

As an emergency response organization, Tualatin Valley Fire and Rescue (TVF&R) is responsible for sustained operations in the event of a major emergency or disaster. Every effort must be made to deliver efficient and effective emergency service delivery to members of the fire district despite the challenges presented during major emergencies or disasters.

The problem is that Tualatin Valley Fire and Rescue has not fully implemented, nor thoroughly trained on their major emergency / disaster operations plan. This has led to a lack of preparedness on behalf of the fire district in the event it should experience a disaster.

The purpose of this research is to enhance and develop a major emergency / disaster operations guideline that will incorporate elements of disaster operations, including the requisite training components for effective implementation.

The research questions were: a) what is the current understanding of major emergency / disaster operations protocol by operations personnel? b) What elements are missing from the current protocol that would enhance major emergency / disaster operations? And c) what training is needed to enhance major emergency / disaster operations?

Action research methodology will be used in surveying members of the operations division and will include an analysis of both the current understanding and what is missing from these protocols. Additionally, the applied research paper (ARP) will yield a new major emergency / disaster operations protocol.

The results of the research indicate that a lack of training and structured exercises have led to a poor understanding of the actions required by members of the fire district when a major emergency or disaster occur.

Recommendations include continued semi-annual training on the revised protocol, continued partnership with the fire district's dispatch agency and additional full scale exercises that include key stakeholders within the emergency management arena within Washington County.

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Introduction

This paper seeks to validate and identify the major reasons why Tualatin Valley Fire and Rescue has not fully implemented or trained on the critical functions necessary to delivery emergency services during major emergencies or disasters within the fire district boundaries.

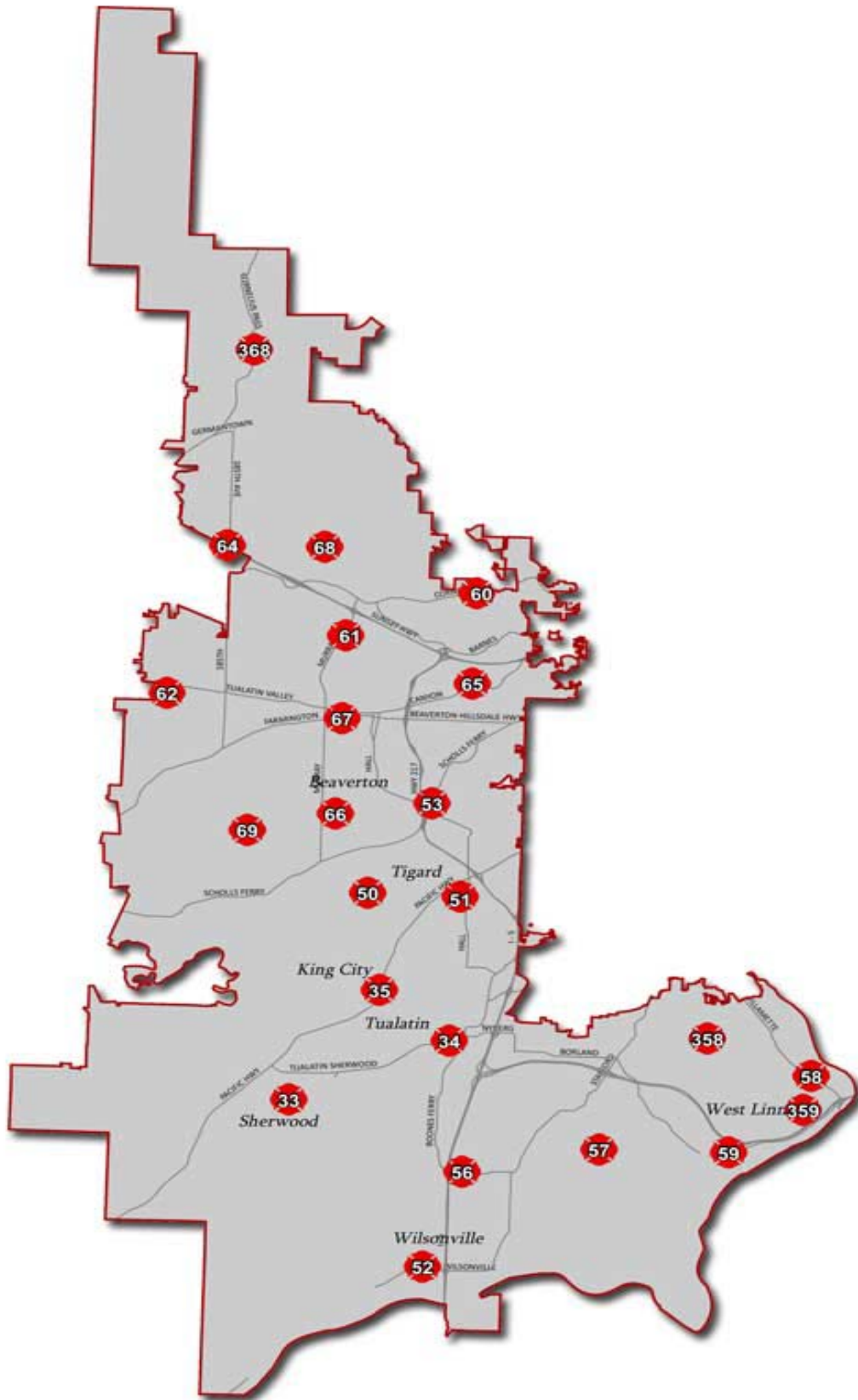
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Background and Significance

Tualatin Valley Fire & Rescue provides fire protection and emergency medical services to approximately 440,000 citizens in one of the fastest growing regions in the Portland Metropolitan region of Oregon. The 210 square mile service area lies West of Portland and includes nine cities and unincorporated portions of Clackamas, Multnomah, and Washington County.



The fire district has 23 fire stations divided into 2 battalions. Stations #67 and #34 represent the North and South Battalion Headquarters (BHQ's) respectively. Station #58 in the East end of the District is designed to be staffed in the event of a major emergency or disaster. In the event of a large scale event, major emergency or disaster, the fire district opens and staffs its Fire Operations Center (FOC) and increases staffing at the 3 Battalion Headquarters locations.

In the event of a major emergency or disaster, every member of the fire district has a role. In the operations division, specific action items are to be performed, based on one of four operational modes:

- Routine operations
- Non routine / expanded operations
- Major emergency operations
- Disaster operations

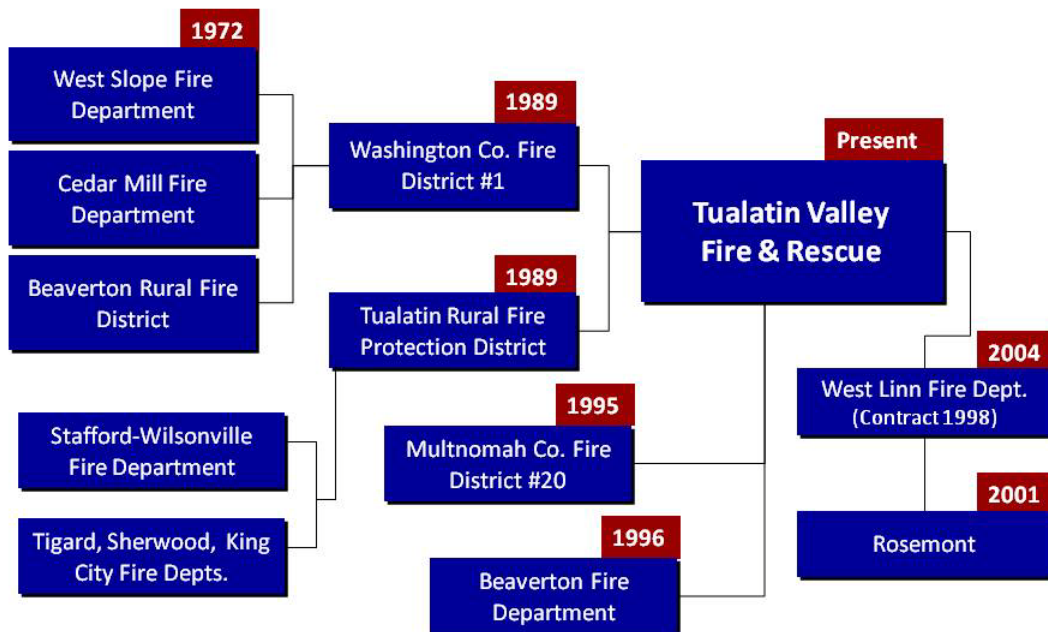
The actions taken by operations personnel are detailed in the Special Operations section of the fire rescue protocols (TVF&R Fire Rescue Protocols, 2007, p.36).

The district is served by five Type III Incident Management Teams (IMT's) that rotate on a weekly basis. Each team consists of nine members, including shadows, which fill standard National Incident Management System (NIMS) roles (TVR&R Emergency Management website). In the event of a major emergency or disaster, one team would report to the FOC with a second team placed on stand-by for potential deployment to other areas within the fire district. Additionally, liaisons are sent to each of our contract cities Emergency Operations Centers (EOC's) and the Washington County EOC, with the

goal of relaying critical information to and from the FOC in a coordinated effort (TVF&R Fire Rescue Protocols, 2007 p. 56).

Over the past 20 years, TVF&R has grown in size due to various mergers and consolidations. As the service area has grown, merging of the various disaster plans of the fire district's nine cities became critical. In 1995, the Office for Consolidated Emergency Management (OCEM) was formed to address a collective approach to regional emergency management. This effort brought the emergency management activities for all of Washington County under one umbrella in an effort to regionalize response, coordinate efforts and develop long term plans for disaster response and mitigation (S. Porter, personal communication, August 5, 2009).

History



Source: TVF&R website at www.tvfr.com

Similar to the OCEM model, TVF&R is served by Washington County Consolidated Communications Agency (WCCCA). The agency was formed in 1985 as an Oregon Revised Statute 190 Organization and serves the ten police agencies and seven fire agencies in Washington County (Oregon Revised Statutes 2007, Chapter 190). The role of WCCCA is critical to the successful implementation and execution of a coordinated response effort to major emergencies or disasters in the region. All exercises relative to major emergencies and disaster operations are coordinated in partnership with WCCCA. Several of these exercises have yielded the importance of an early IMT connection to WCCCA via a liaison from the team. A recent reorganization of all 5 IMT's allowed for the expansion of the Fire Dispatch Liaison (FDL) role within WCCCA much earlier than previously planned (J. Rubin, personal communication, August 10, 2009).

WCCCA also maintains a two county wide 800 MHz trunked radio network that serves both Washington and Clackamas Counties. Although redundant in many ways, a failure of this system has not been planned for in any manner, including a comprehensive disaster communications plan that assures communications in the unlikely event of total loss of the system.

Due to the complexity of major emergency / disaster operations, the inherent complexities of disaster communications and the infrequent training and exercises relative to disaster operations, TVF&R is unlikely to be prepared for disaster operations.

The research conducted in this paper ties directly to the National Fire Academy's *Executive Analysis of Fire Service Operations in Emergency Management* Course. The primary mission of Tualatin Valley Fire and Rescue is to provide exceptional emergency prevention, preparedness and response services through cost effective innovation,

individual excellence and outstanding customer service (TVF&R Strategic Plan, 2008, p. 1). This applied research paper will help to strengthen TVF&R's mission and continued successful service delivery.

The research project supports operational objective (d) as described in The United States Fire Administrations' operational objectives. This operational objective is as follows: "to promote within communities, a comprehensive, multi-hazard risk reduction plan led by the fire service organization." (NFA Applied Research Guidelines, (2006), II-2). This was achieved through a comprehensive analysis of the current major emergency / disaster operations protocol and subsequent revision of the document based on employee and staff input. This research paper will serve as the basis for a substantive revision of the major emergency / disaster operations fire rescue protocol. In an effort to continually improve fire and emergency service delivery to the citizens TVF&R, it will serve as a springboard for educational and training opportunities to TVF&R employees.

Literature Review

The purpose of this literature review is to summarize information from outside sources that assist in providing critical elements in response to the research questions.

A disaster is a tragedy of natural or human made hazard that negatively affects society or the environment and may require long recovery periods. A disaster can be defined as any tragic event with great loss stemming from events such as earthquakes, floods, catastrophic accidents, fires or explosions (Wikipedia, 2009). The potential for disaster exists in every area in the United States. No public safety agency is immune from the potential for disaster (Olasky, 2006).

Disaster potential

Within the service boundaries of TVF&R, the disaster potentials are real. Washington County has suffered devastating losses from natural disasters. County residents are aware of the economic loss, damaged infrastructure and loss of life caused by floods, windstorms, and other natural hazards (Office of Consolidated Emergency Management [OCEM], 2004 Natural hazards mitigation action plan, p.1-1).

Washington County was declared a Presidential Disaster area three times in the last twenty years. A severe windstorm in December of 1995, which caused the death of four people in Oregon, brought Washington County its first declaration. The massive flood events in 1996 caused further damage and loss to the county and led to the second disaster declaration (OCEM 2004). A substantial snowfall event in late December of 2008 was counted as the third disaster that earned Presidential declaration.

As a result of these events and in an effort to reduce future disaster related losses, Washington County Emergency Management initiated development of a Natural Hazards Mitigation Action Plan in 2000. The County received one third of the plan development costs from the Flood Mitigation Assistance (FMA) Program, a Federal Emergency Management Agency grant program (FEMA 1994). The development of a mitigation plan is a requirement for acceptance of the FEMA funds. Washington County Emergency Management provided the additional funds to finance the plan.

Oregon law requires Washington County government to establish an emergency management agency to prepare the County for a disaster. Oregon Revised Statutes Chapter 401.305 (2008) states that:

Each county of this state shall, and each city may, establish an emergency management agency which shall be directly responsible to the executive officer or governing body of the county or city. (p. 1)

At a minimum, the county is required to coordinate emergency planning activities including writing an emergency plan, managing and maintaining emergency operating facilities, and establishing an Incident Command System (ICS) for management of a coordinated response (OCEM 2006).

The role of TVF&R Emergency Management

Emergency management is a key aspect of TVF&R's disaster planning and response capability. Emergency management is the discipline of dealing with and avoiding risks (Wisner et al., 2004). It embodies four key areas that include: preparing for a disaster before it occurs, mitigating the factors that may lead to a disaster, responding to disasters and assisting in the recovery after a disaster occurs. Emergency management is the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or ameliorate the impact of disasters resulting from the hazards (Cuny, 1983).

Of the four key areas of Emergency management: mitigation, preparation, response and recovery, preparation and response have largely been the focus of the fire service community (J. Rubin, personal communication, August 10, 2009). During the preparation phase of emergency management, substantial planning is core to the overall ability to respond to disaster incidents.

In 1996, the Office of Consolidated Emergency Management (OCEM) was formed, allowing for a streamlined approach to emergency management between the county and

the incorporated cities within its jurisdiction (S. Porter, personal communication, August 5, 2008). To remain congruent with the goals of OCEM, TVF&R's emergency manager plays a key role in aligning and updating any response plans, communications protocols and training exercises relative to major emergency / disaster operations (J. Rubin, personal communication, August 10, 2009).

The importance of protocols

Just like requirements and specifications define what actions are supposed to be accomplished and how they are to be accomplished, standards and protocols provide instructions for standardized actions (Philosope, 2009). The development of TVF&R's Fire Rescue Protocols in 2000 served as a guideline for intervention on fire incidents based on the model of emergency medical protocols (M. Stevens, personal communication, August 10, 2009). Standardizing responses to given incidents assures a collective predictable outcome when expert guidance is not otherwise available.

LaPlante (1989) emphasizes the importance of predefining roles and responsibilities before a disaster occurs. Providing effective emergency response and mitigating a disaster requires the ability to act and the knowledge of what to do and established protocols are a mechanism for action.

Godfrey (2006) articulates the difficulty of gaining the requisite knowledge for action in event of a disaster. Action during disasters is often learned in an academic sense, and based on cost and complexity; real world exercises are rare and impractical. Means of alternative and frequent training sessions must be developed that ensure high fidelity exercises in short durations allowing for mental modeling to occur. These exercises can be completed easily with minimum cost and interruption to daily operations.

Katrina – an example of failed protocol

Hurricane Katrina was certainly a disaster of epic proportion. In a review of after action reports, a lack of preparedness and failure of basic communications services were primary factors in substantial loss of life and disruption of emergency services (North Carolina Department of Emergency Management, 2006).

During Hurricane Katrina, virtually every system failed: Internet communications, radio transmissions, cell phones, even backup gear such as satellite phones handed out by Federal relief workers after the storm. Even when the equipment worked, officials from different agencies and jurisdictions could not talk with one another. Their radios were simply not compatible (Warrick, 2005).

A lack of a basic plan to assure communications capability had not been contemplated. Although some radio systems had back up power systems, they failed as well. The central trunking controller for New Orleans Police Department (NOPD) failed when protective coverings for its generator were damaged from flying glass from a nearby hotel. No backup system was in place, including simple means of providing simplex radio coverage to areas of the city (Careless, 2006).

Revisions to emergency operations plans and protocols are important to assure cohesive planning and response. Gill (2007) states several factors influence the need to update emergency operations plans. These include:

- (a) Lessons learned from recent events, including in-state events and major national events, such as Hurricane Katrina.
- (b) Ongoing developments at the national level, such as changes to the National Incident Management System (NIMS)

- (c) Ongoing revisions to the National Response Framework (previously titled the National Response Plan) and changes in Federal operations.
- (d) The importance of regional capabilities and regional responses to major events.
- (e) Advances in technology, such as information sharing and communications systems.
- (f) Increased emphasis on collaboration with the private sector.

In summary, the literature review defined a disaster and illustrated the potential for disaster in TVF&R's service area. Significant potential exists within Washington County and the Portland Metropolitan Region based on historical data. Principles within emergency management detail the critical link between pre-disaster planning and disaster response. Within the research, it became apparent that the use of standardized protocols is critical to assure predictable responses and allow for basic actions to take place in the event of an emergency when communications are disrupted. Furthermore, these protocols must be frequently practiced to be effective.

A review of after action reports from Hurricane Katrina provided a historical perspective that can be used to predict potential outcomes in large scale disasters. The reports clearly reveal that back up communications systems must be in place and practiced to assure reliability when all other means of communications fail.

Finally, the importance of continued plan revision based on a constantly changing landscape is critical. Some of the national and regional influences include technological changes, changes in regional responses to events and revisions to national disaster plans. Knowing that a disaster could occur in TVF&R's service area and understanding the importance of disaster planning and exercises significantly influence the value of this applied research project.

Procedures

The research procedures utilized in this paper began with an overview of Applied Research Papers related to emergency management in the National Fire Academy's Learning Resource Center (LRC) and an overview of related periodicals, journal articles and texts. Additional research continued with a thorough review of the Tualatin Valley Fire and Rescue Fire Rescue Protocols, specifically the section on major emergency and disaster operations (TVF&R Fire Rescue Protocols, 2007). Subsequent research was performed in the review of TVF&R emergency operations plan and the 2008 *Standards of Cover for Emergency Response* (TVF&R Standard of Cover, 2008). Several trade journals, Hurricane Katrina after action reports and emergency management documents were also reviewed. The focus of these documents was largely to evaluate the role of planning in disaster management and the importance of the use of protocols when traditional command and control has not been fully established.

Results were gained from a survey that was conducted of 327 operations personnel within the district. The survey was issued to personnel in August of 2009 via a web based tool with a fifteen day response window. The survey questions asked the following:

- a) are you aware of the fire rescue protocol for major emergency / disaster operations?
- b) Based on the fire rescue protocols, do you understand your role in the event of a major emergency?
- c) Based on the fire rescue protocols, do you understand your role in the event of a disaster?
- d) Based on the fire rescue protocols, do you understand the disaster communications plan?
- e) When is the last time you had training on the major emergency / disaster operations plan?
- f) What elements are missing from the current protocol that

would enhance major emergency / disaster operations? g) Do you have any suggestions for ongoing training relative to the plan?

Of the 327 surveys issued, 235 responses were received (72%). It is assumed that this number was sufficient for sampling purposes.

Individual interviews with all five of the Planning Section Chiefs on TVF&R's incident management teams, key emergency management staff, communications technicians and WCCCA staff were conducted to gain an understanding of the actions that would be taken during a major emergency / disaster event. Some of the questions were specific to their understanding of the disaster communications plan. A list of the interviewees can be found in Appendix D of this paper.

The author's participation on TVF&R's Incident Management Team Five, the Oregon State Fire Marshal's Green Incident Management Team and as TVF&R's liaison to Washington County Consolidated Communications (WCCCA) allowed for significant insight into the importance, validation and revision of current major emergency / disaster operations.

Limitations

The limitations of this paper include the fortunate small number of major disasters in TVF&R's service area to validate the outdated fire rescue protocol or the current revision. Additional limitations include the scope of the paper that excludes a survey of neighboring and cooperator agencies to further validate the accuracy and functionality of the plan. It is assumed that a major disaster would be regional in nature and therefore necessitate a multi-jurisdictional, multi-agency response.

Further limitations include an assumption that all individual interviewees were honest and forthright in their individual responses and had a thorough knowledge in both the existing fire rescue protocol and the communications systems used by the fire district.

Finally it is assumed that all data returned from the web based tool was accurate and the questions in the survey were understood by the respondents and appropriate to meet the needs of the research paper. It is also assumed that all survey respondents were honest and forthright in their responses to the survey and that respondents understood that their responses would remain anonymous.

Definitions

For the purposes of this paper, the following definitions are used:

Battalions: Defined geographic areas of the District. There are three Battalions – North, South and East. The East Battalion is not part of Normal Operations; it is staffed only for Disaster Operations.

Battalion Headquarters (BHQ's): The home station offices for the North and South Division Duty Chiefs, plus East Battalion, which under normal operations is covered by C-6 and Lake Oswego's Battalion 1.

- North - C-5 at Station 67, 13810 SW Farmington Road, Beaverton
- South - C-6 at Station 34, 19365 SW 90th Court, Tualatin
- East - Station 58, 6050 Failing Street, West Linn (Bolton)

Communications Center (FireComm): Represents the Public Safety Answering Point (PSAP) at Washington County Consolidated Communications Agency (WCCCA).

Critical Facilities: In the course of conducting a drive-by survey of a first response area, companies should assess these facilities for major damage. Examples of critical facilities are schools, hospitals, nursing homes, public safety buildings, major hazardous materials facilities, major thoroughfares, including overpasses and bridges.

Disaster Operations: Operational mode in which centralized emergency communications and dispatch are not functioning. This includes disruption of 9-1-1 service, the 800-MHz radio system, or both. In this situation, the Company Officer prioritizes incidents in accordance with this guideline and responds accordingly.

Expanded Dispatch: A structure and procedure for optimizing fire resource management during large incidents and major emergencies when demand exceeds system capacity and incident prioritization may be necessary. EOC activation is not needed. Washington County Expanded Dispatch is located at WCCCA and is supported by Hillsboro and TVF&R incident management team representatives.

Expanded Operations: An operational mode providing enhanced dispatch and support functions during a large incident or multiple incidents while minimizing impact on routine operations within a county and other service areas. Expanded Operations typically involves a single discipline.

Facility Damage Control Plan: A pre-plan done for each district facility that addresses personnel safety, facility issues and equipment following a major emergency or disaster.

Fire Dispatch Liaison (FDL): Chief Officer, assigned to the fire dispatch position (FireComm) at WCCCA to assist dispatch in the prioritization of incidents and the assignment of resources. The IMT District Operations Chief typically fills this position.

Fire Operations Center (FOC): Location from which the District incident management organization directs, coordinates, and supports major emergencies. The primary location for the FOC is the TVF&R Administration Building.

Incident Management Organization (IMO): Incident Management Organization for major emergency operations. The IMO comprises all Incident Management Teams (IMT's), in addition to administrative and support staff organized to provide direction and support to line companies during major emergencies/disasters.

Major Emergency Operations: Operational mode in which FireComm is operational but demand substantially exceeds system capacity. Incident prioritization is necessary, but normal communications are functioning.

Negative Reporting: Reporting only those items that are out of the ordinary. Example: Personnel - do not report that "all personnel are fine"; only report if someone is injured.

PAR (Personnel Accountability Report): Roll call performed at onset of a major emergency or disaster to determine the location and status of District personnel and resources.

Priority 1 Incident: Requires immediate action. *Known* life safety risk and/or confirmed multiple victims/patients.

Priority 2 Incident: Unknown life safety risk or known minor injuries.

Priority 3 Incident: Property damage, alarms (except medical) or public assistance calls. These incidents only receive resources when all Priority 1 and 2 incidents have been handled.

Station Commanders: Most likely the senior Company Officer who responds to a station following a major emergency or disaster. This person is responsible for: tracking incident responses and maintaining unit response rotation; ordering supplies; responding to citizen requests; forwarding information on incidents to the Battalion Chief. TVF&R volunteers forces may also fill this position.

Results

A revised major emergency and disaster operations fire rescue protocol is shown in Appendix A and represents a result of this research. Concurrent revisions of TVF&R's Emergency Operations Plan Section 2 – *Common Management Functions* and Chapter VIII – *Emergency Communications* are included in Appendices B and C respectively.

Results were gained from a survey that was conducted of 327 operations personnel within the district. The survey was issued to personnel in August of 2009 via a web based tool. 235 members responded to the survey. The following were the results of that survey:

Question one asked: Are you aware of the fire rescue protocol for major emergency / disaster operations? This was a forced choice question. The answers were: (a) yes (98%), and (b) no (2%).

Question two asked: Based on the fire rescue protocols, do you understand your role in the event of a major emergency? This was a forced choice question. The answers were: (a) yes (68%) and (b) no (32%).

Question three asked: Based on the fire rescue protocols, do you understand your role in the event of a disaster? This was a forced choice question. The answers were: (a) yes (84%) and (b) no (16%).

Question four asked: Based on the fire rescue protocols, do you understand the disaster communications plan? This was a forced choice question. The answers were: (a) yes 29%) and (b) no (71%).

Question five asked: When is the last time you had training on the major emergency / disaster operations plan? This was a forced choice question. The answers were: (a) 2005 (7%), (b) 2006 (10%), (c) 2007 (29%), (d) 2008 (48%), (e) 2009 (2%), (f) cannot remember (14%).

Question six asked: What elements are missing from the current protocol that would enhance major emergency / disaster operations? This was a forced choice question. The answers choices were: (a) training and exercises (41%), (b) equipment (4%), (c) updated checklists (27%) and (d) human repeater plan (28%).

Question seven asked: Do you have any suggestions for ongoing training relative to the plan? This open ended question was replied to by nearly 30% of the surveyed population. Many of the responses centered on more practical and realistic drills that were easy to access via district intranet or DVD.

Appendix E details the survey questions. Appendix F details the survey results.

The research questions at the beginning of this paper were: a) what is the current understanding of the major emergency / disaster operations protocol by operations personnel? b) What elements are missing from the current protocol that would enhance

major emergency / disaster operations? And c) what training is needed to enhance major emergency / disaster operations?

Research Question 1. What is the current understanding of the major emergency / disaster operation protocol by operations personnel?

It is clear that the survey results indicated that although many of TVF&R operations personnel understand their role in a disaster, most of them do not clearly understand the disaster communications plan. As indicated in the literature review, a clear understanding of roles and responsibilities is critical during times of disaster (OCEM 2004).

The probability of disaster is high based on a historical review of disaster declarations in Washington County (OCEM 2004). No area within the country is immune from disasters and it is incumbent upon all public safety agencies to engage in preparedness (Olasky, 2006).

Research Question 2. What elements are missing from the current protocol that would enhance major emergency / disaster operations?

Two major elements surface as missing in TVF&R's current major emergency / disaster operations FRP: the ability to revert to a simple back up communications plan and a substantial need for high fidelity training on communications devices and disaster operations.

In terms of disaster communications and the importance of a robust disaster communications plan, this becomes especially clear in instances where centralized communications have been lost for lengthy amounts of time. After action reports of Hurricane Katrina contained in the literature review clearly indicate that failures in both

the primary and secondary means of communications for New Orleans Fire Department created a series of chaotic events that crippled nearly all public safety agencies ability to adequately respond to emergency incidents (Warrick, 2005).

The importance of a lowest common denominator system must be planned and exercised regularly to assure a means of basic communications during a disaster (Careless, 2006). The survey indicates that many members request training on a revised human repeater plan. This would be a tremendous step towards and understanding of a basic of radio communications method during a disaster when centralized communications are lost.

The current format, quality and frequency of disaster operations training is clearly not enough. Interviews and responses to the survey questions demonstrate a large gap in training to operations personnel in this critical area. A close look at the format of training must be analyzed as well. Large, expensive and complicated drills are not practical. The literature review indicates the potential for an alternative format of high fidelity training (Godfrey, 2006).

Research Question 3. What training needs to be provided to enhance major emergency / disaster operations?

Both survey results and interviews with members of the Incident Management Teams indicated that hands on exercises, simple and realistic in nature would fill much of the void. Frequent changes in technological communications devices without detailed and realistic training have led to a significant misunderstanding of the available functionality to the users.

As a protocol, a revision with follow up training emphasizes the importance of pre defining roles before a disaster occurs (LaPlante, 1989). Within the TVF&R system, training on PAR's, the human repeater plan and the available day to day and back up communications systems will be critically important.

Discussion and Implications

It is clear that based on the survey results, interviews with key district personnel and a review of best practice documents within the emergency management arena that TVF&R is not fully prepared for a disaster based on current protocols, specifically in areas of backup communications and practical exercises. The substantive issues can be evaluated in three main categories that include organizational implications, regional implications and lessons learned.

Organizational Implications

Tualatin Valley Fire and Rescue is a medium size fire department formed from several mergers, acquisitions and annexations. Throughout this process of rapid growth in a young fire agency, it has been difficult to develop a cohesive major emergency and disaster operations plan that was integrated with the districts nine annexed cities and understood by district personnel. Although the survey revealed that there is a general understanding of what is expected in both major emergency and disaster operations, the disaster operations plan was generally misunderstood due to a lack of drills and exercises. As an example, large scale disaster exercises in 2008 and 2009 were cancelled due to higher district priorities. Additionally, only the communications department with some

assistance from Logistics personnel had tested the human repeater plan prior to deployment.

A second implication to the organization included a lack of understanding of the communications tools available to the operations division. The district has many forms of redundant communications available. These include fixed satellite systems, various cell phones of differing network providers, mobile satellite internet capability, readily deployable back up repeaters and when all else fails, a plan for deploying nine human repeaters to predetermined strategic locations. The survey results and the interviews revealed that the instructions for device usage and the lack of an updated fire rescue protocol have led to an overall misunderstanding of the communications plan.

Finally, at the core of providing fire and emergency service delivery during disasters is the ability to have a continuity of operations capability. Although robust plans exist internal to the district, they have not been updated or exercised in three years and substantial changes to the district's topology have occurred.

Regional Implications

TVF&R cannot operate in a silo. In fact, it is a conglomeration of agencies and cities that created the fire district and has allowed for a substantial economy of scale. The district enjoys comprehensive mutual and automatic aid agreements that recognize and embrace the closest forces concept. This same concept must apply to disaster operations as well. Partnerships throughout the region will be critical to the success of the district in the event of a major emergency or disaster.

The Office of Consolidated Emergency Management (OCEM) was formed to assure an economy of scale and assist in a ubiquitous and seamless emergency management platform (S. Porter, personal communication, August 5, 2009). Although many of the plans for major events are documented, they have been infrequently used and only in isolated areas of the county without significant exposure to key stakeholders or the Incident Management Teams (J. Rubin, personal communication, August 6, 2009).

As a critical partner, Washington County Consolidated Communications Agency (WCCCA) plays a significant role in both the maintenance and planning of back up communications systems, and equally important role in managing the availability, location and response capability of county emergency resources. Although the fire dispatch liaison (FDL) is a component of the plan, it is unclear who will assume this function in the event of a major emergency without some form of post incident coordination. This lack of planning would dramatically impact the management of fire resources within WCCCA's service area.

Opportunities in Lessons Learned

During the research of this applied research project, it was discovered that several after action reports from previous TVF&R exercises contained valuable suggestions to assist in updated and validating an overhaul of the fire rescue protocol relative to major emergency / disaster operations. Some of these suggestions were impossibilities due to a lack of internal expertise or resources to accomplish a comprehensive disaster communications plan.

The recent replacement of TVF&R's radio subscriber units offered a unique opportunity to detail enhanced radio capability and updated radio templates to the operations personnel in a training environment (TVF&R Capital Radio Replacement Plan 2007). Lessons learned from the training sessions revealed a global misunderstanding of the complexities and the potential for failure of the radio system (B. Smith, personal communication, August 10, 2009). In addition, further research revealed means of identifying the various modes of failure of the radio system and therefore trigger trained behavior and reactions by TVF&R personnel.

Finally, incidents of national significance, such as Hurricane Katrina, have indicated the importance of thorough disaster planning. Specific reference was made to the failure of critical public safety communications systems as a primary contributing factor to a lack of situational awareness and poor coordination (Hurricane Katrina After Action Report, June 2006, p.48). This incident, coupled with other major disasters indicates opportunities TVF&R can use to the benefit of the district.

Recommendations

The results of this research paper indicate that several important steps need to be taken to enhance the emergency and disaster operations protocols. Due to limitations in funding, time for exercises and available personnel resources to perform the updates, training and revisions, these recommendations are listed in order of importance and probable impact.

Revise, update and validate the 2007 major emergency and disaster operations protocol

The FRP concerning major emergency and disaster operations is the largest and most significant playbook of TVF&R's actions detailing the actions taken during a major emergency or disaster. Significant changes have occurred internally and externally to the fire district that require a substantial overhaul to this protocol. Appendix A of this applied research paper hosts a revised major emergency and disaster operations protocol. All updates to this protocol are a direct result of the research conducted for this paper.

Equally important to the revision of the FRP is the concurrent evaluation and revision of the emergency operating guidelines contained within TVF&R emergency operations plan (EOP). Appendix B Section VIII *Emergency Communications* and Appendix C *Emergency Operations Plan – Section 2* contain the necessary revisions to the EOP that allow the FRP to remain current and consistent with guidance for line and administrative personnel.

Semi-annual exercise of various backup communications systems

The fire district has a wide array of communications devices. Based on the level of complexity, it is recommended that the fire district target training to both line and administrative staff on the use of these devices. As an example, the fire districts updated satellite phones are both feature rich and new to many personnel. As an adjunct communications device that can be used in absence of all other communication means, it is critically important that all members of the Incident Management Teams receive a yearly refresher on their use and functionality. Secondly, the devices that are utilized on a near daily basis have many features that would enhance functionality during major

emergencies and are not well understood by the users. Training on these features would be beneficial.

Monthly training on district wide Personnel Accountability Reports (PAR)

One of the key directives in the FRP is the ability of the supervisory group to perform a PAR of their subordinates, the condition of their facilities and any other items of significance in a succinct and organized fashion. Based on the FRP, this can be done quite quickly via the 800 MHz radio system in either a trunked or simplex mode. The results of this applied research project indicate that much more efficiency can be gained through a higher frequency of practical demonstration of the PAR's. One simple means of conducting the PAR would be based by Battalion (North and South) and done shortly after shift change on the first Monday of the month.

Annual refresher training on the disaster communications plan

Many elements of the disaster communications plan are new. This includes clear documentation of the levels of failure we may most likely experience with the 800 MHz trunking system and an easy to use and deploy human repeater plan. Both of these updates are referenced in the revised FRP and the EOP Chapter VIII. Along with the elements of communications, it will be equally important to review individual employee responsibilities when a disaster occurs. These include common expectations for managers and their staff and continuity of operations capability of each division within TVF&R.

Continued new employee orientation on the emergency operations plan

TVF&R provides orientation on the emergency operation plan for each new member of the district. It is recommended that this continue with additional curriculum that provides guidance and education on the critical elements of emergency communications and disaster preparedness. Based on the revised FRP, it is important to clearly articulate expectations and actions before, during and after a major emergency or disaster. These include preparatory actions at home, detailed guidelines of action plans while at work and a thorough understanding of the roles and responsibilities when the Fire Operations Center (FOC) is activated.

Annual full scale exercises with FOC activation and deployment of human repeaters

Performing the actual deployment of the FOC and the human repeater plan will further cement important initial actions immediately after a major event or disaster. As detailed in the literature review, communications is one of the most frequently cited problems during a disaster. The restoration of a communication means, even if it is done so via the lowest common denominator such as human repeater plan, is vitally important to the continuity of operations for the fire district.

Implementation of a Fire Dispatch Liaison on each incident management team

The Fire Dispatch Liaison (FDL) position at WCCCA is the primary means of coordinating resource availability during a major emergency or disaster. Even under non routine operations when the dispatch center is experiencing a high call load, the FDL has proven to be a valuable tool in the overall coordination and coverage of the Western

Metropolitan area. The use of the FDL becomes even more important during major events. For this reason, it is recommended that the FDL position on the IMT be supported. This includes guidelines for performance, expectations during a major event and predetermined objectives when centralized communications are lost.

Annual review of the major emergency / disaster operations plan

The research conducted in preparation for this applied research project demonstrated the importance for frequent review, exercise and training on major emergency / disaster operations plan. Although the fire rescue protocols are reviewed every three to five years, it is recommended that specific sections of the FRP's and TVF&R's EOP's be evaluated annually and revised if necessary.

Although time consuming and expensive, these recommendations would dramatically enhance the preparedness of TVF&R for a major emergency or disaster in its service area. The recommendations provided within this paper help to ensure congruency with TVF&R's mission and provide its personnel with clear guidance and direction in the event of a disaster.

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Appendix A

Revised Major Emergency and Disaster Operations Fire Rescue Protocol – 2009

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MAJOR EMERGENCY & DISASTER OPERATIONS

PURPOSE

This guideline provides procedures in event of a major emergency or disaster in which routine dispatch/assignment of resources cannot keep pace with incident demand. A modification of operational protocols during a major emergency or disaster will be essential to ensure effective operational direction and control. In such situations, there is a critical need to “triage” incidents and assign resources accordingly. Routine dispatch assignments are suspended. Major Emergency dispatching guidelines provide a limited response in order to maximize overall resource management. In a catastrophic event, such as a severe earthquake, dispatch functions may not be operating. This requires crews to drive their first response area to identify, prioritize, and manage incidents on their own.

Major emergencies/disasters may occur without warning. The intent of this guideline is not to provide a solution to every problem that could arise during a major event, such as an earthquake. Rather, it is meant to provide a command and procedural framework within which incident managers and Company Officers can develop an emergency organization that provides guidance to prioritize resource allocation and respond to problems that a major emergency or disaster will create.

This guideline incorporates the following essential transitions from a normal response mode:

- It identifies immediate actions required of incident managers and Company Officers to preserve the emergency resource capabilities of TVF&R.
- It supersedes normal procedures.
- It continues until otherwise determined by the Chief or the Incident Commander. Such determination can allow varying degrees of return-to-normal operations in geographic areas of the District.

This guideline identifies two non-routine models of operation: Major Emergency Operations and Disaster Operations.

DEFINITIONS

“All-Call” Page: Simultaneous pager activation of all pagers on the WCCCA paging system. Used for notifications during major events, or for routine communications sent to all companies. TVF&R also has the capability to “all-call” page for the Incident Management Team (IMT).

Battalions: Defined geographic areas of the District. There are three Battalions – North, South and East (**NOTE:** East Battalion is not part of Normal Operations; it is staffed only for Disaster Operations).

Battalion Headquarters (BHQ): The home station offices for the North and South Division Duty Chiefs, plus East Battalion, which is normally covered by C-6 and Lake Oswego’s B-1.

- C-5 at Station 67, 13810 SW Farmington Road, Beaverton
- C-6 at Station 34, 19365 SW 90th Court, Tualatin
- Station 58, 6050 Failing Street, West Linn (Bolton)

Communications Center (FireComm): Represents PSAP (Public Safety Answering Point) at WCCCA (Washington County Consolidated Communications Agency).

Critical Facilities: In the course of conducting a drive-by survey of a first response area, companies should assess these facilities for major damage. Examples of critical facilities are

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schools (if in session), hospitals, nursing homes, public safety buildings, major hazardous materials facilities, major thoroughfares, including overpasses and bridges.

Disaster Operations: Operational mode in which centralized emergency communications and dispatch are not functioning. This includes disruption of 9-1-1 service, the 800-MHz radio system, or both. In this situation, the Company Officer prioritizes incidents (in accordance with this guideline) and responds accordingly.

Drive-By Survey: A reconnaissance conducted to assess the scope of the problem and identify response priorities in a company's first response area.

Emergency Alert System (EAS): A system used by the radio and television to relay important public safety information and instructions during an emergency. The EAS station is KXL 750 AM.

Expanded Dispatch: a structure and procedure for optimizing fire resource management during large incidents and major emergencies, when demand exceeds system capacity and incident prioritization may be necessary, but EOC activation is not needed.

Washington County Expanded Dispatch is located at WCCCA and is supported by Hillsboro and TVF&R incident management team representatives. **Clackamas County Expanded Dispatch** is located at C-COM/Clackamas County EOC and is supported by the Clackamas Fire Defense Board.

Expanded Operations: operational mode providing enhanced dispatch and support functions during a large incident or multiple incidents, while minimizing impact on routine operations within a county and other service areas. Expanded Operations typically involves a single discipline. DOC and EOCs may be partially or fully activated.

Facility Damage Control Plan: A pre-plan done for each District facility that addresses personnel safety, facility issues and equipment following a major emergency or disaster.

Fire Dispatch Liaison: Chief Officer, assigned to FireComm at WCCCA to assist dispatch in the prioritization of incidents and the assignment of resources. The IMT District Operations Chief typically fills this position.

Fire Operations Center (FOC): Location from which the District incident management organization directs, coordinates, and supports major emergencies. The primary location for the FOC is the TVF&R Administration Building.

Incident Management Organization (IMO): Incident management organization for major emergency operations. The IMO comprises all Incident Management Teams, in addition to administrative and support staff organized to provide direction and support to line companies during major emergencies/disasters.

Major Emergency Operations: Operational mode in which FireComm is operational but demand substantially exceeds system capacity. Incident prioritization is necessary, but normal communications are functioning.

Negative Reporting: Reporting only those items that are out of the ordinary. Example: Personnel - do not report that "all personnel are fine"; only report if someone is injured.

PAR (Personnel Accountability Report): Roll call performed at onset of a major emergency or disaster to determine the location and status of District personnel and resources.

Priority 1 Incident: Requires immediate action. **Known** life safety risk and/or confirmed multiple victims/patients.

Priority 2 Incident: Unknown life safety risk or known minor injuries.

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Priority 3 Incident: Property damage, alarms (except medical) or public assistance calls. These incidents only receive resources when all Priority 1 and 2 incidents have been handled.

Station Commanders: Most likely the senior Company Officer who responds to a station following a major emergency or disaster. This person is responsible for: tracking incident responses and maintaining unit response rotation; ordering supplies; responding to citizen requests; forwarding information on incidents to the Battalion Chief. TVF&R Volunteers may also fill this position.

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PROCEDURES

1. FACILITY DAMAGE CONTROL PLAN

The Facility Damage Control Plan is a pre-planning function to be developed and maintained by the Chief Officer responsible for each District facility. For stations, it is the Station Captain. (Appendix G: Facility Damage Control Plan Template) It outlines the potential problems at the facility, addresses personnel safety, facility issues and equipment following a major emergency or disaster. The plan includes:

- A. Accounting for Personnel
- B. Structural Surveys of the Facility
- C. Apparatus Checks (if applicable)
- D. Communication Availability
- E. Hazardous Areas
- F. Safe Areas
- G. Emergency Power
- H. Condition of Fuel Tanks
- I. Use and Disbursement of Emergency Provisions
- J. Facility specific items that are relevant to efficient and safe operations. In addition, a list of actions to be taken to ensure the in-service status of the assigned unit(s) shall be listed by priority. Station Captains and Chief Officers must review and update the Facility Damage Control Plan by January 1 each year.

For stations, a copy of the plan with a copy of their drive-by survey rate is to be placed with the move up maps in or near the apparatus bay. The supervising Duty Chief reviews and maintains a copy of the plans submitted in their Battalion. For other District facilities, the responsible Chief Officer designates an appropriate location for the plan.

2. MODES OF OPERATION

- A. There are four operational modes that determine how resources are assigned. All companies must monitor dispatch to determine the operational mode in effect. See Diagram 1.
 - i. Normal Operations: FireComm dispatches companies per routine protocols. Normal communications are functioning.
 - ii. Expanded Operations: FireComm and normal communications are functioning. High demand for single discipline (Fire, LE, PW – most likely Fire activation is for major wildland incident in county); other disciplines functioning normally. IMT assigned through Fire Defense Board to staff Expanded Dispatch at 9-1-1 center (WCCCA or C-COM). FOC may be activated.
 - iii. Major Emergency Operations: FireComm and normal communications are functioning. FireComm dispatches companies, via incident prioritization (see Section VIII). In this situation, typically only one apparatus is dispatched to assess the situation and request additional resources. Companies have latitude to take action on any situation that is immediately

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life threatening. Action is limited to only that which is necessary to render the situation non-life threatening. Companies will be available for immediate response to higher priority incidents.

- iv. Disaster Operations: Normal communications are not functioning. FireComm is not receiving 9-1-1 calls and/or not able to dispatch calls and. In this mode, companies should conduct a drive-by of their first response area, prioritizing incidents they come across, and respond accordingly. Company Officers must use voice communications only, and should attempt to relay findings and actions to their Duty Battalion Chief. Companies may only be able to use Simplex channels (**Simplex 1-4**) or **Training 1** for communications. To the extent possible, Company Officers should log incidents.

In Disaster Operations mode, Duty Chiefs coordinate all resources and incidents in their Battalion. Duty Chiefs are the point of all operational and support issues in their Battalion.

- B. A Duty Chief may, at any time, change the mode of operation based on further knowledge of the overall situation.

3. ACTIVATION

- A. Major Emergency Operations:

- i. Activation by Duty Chiefs: The Duty Chiefs, in consultation with one another, may activate this procedure when appropriate.
- ii. A Duty Chief should direct FireComm to implement 'Major Emergency' guidelines. In addition, the Duty Chief initiates activation of this procedure by tapping out the on-call Incident Management Team by doing an "all-call" page from any District computer. The IMT reports to the Fire Operations Center at TVF&R Administration, or an alternate site designated by the implementing Chief.
- iii. Activation by Administrative Staff: The Fire Chief, Assistant Chiefs, or on-call IMT Incident Commander may initiate activation.

- B. Disaster Operations

Self-Triggering Event: A sudden catastrophic event, such as a major earthquake, volcanic eruption or terrorist action, may generate a self-triggering activation. **If normal communications are not functioning and no contact with FireComm is possible, the District automatically defaults to Disaster Operations mode.**

4. IMPLEMENTATION

- A. Major Emergency Operations

- i. Upon activation by an appropriate official, or in case of a self-triggering event, FireComm takes the following actions:
 - a. Generate an "all-call" page of companies.
 - b. Announce: "Washington County (or Tualatin Valley Fire & Rescue) is now operating under Major Emergency Guidelines. Follow the Major Emergency Guidelines and standby for station PAR by your agency on your designated talk group."

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- ii. Upon activation of 'Major Emergency' operations, Company Officers should begin monitoring **Dispatch** and **Training 1**.
 - iii. The IMT District Operations Chief should respond to FireComm to assist dispatch in incident prioritization, and provide overall direction for resource management until the Incident Management Organization is operational. In Major Emergency Operations mode, all Duty Chiefs shall remain in their Battalions.
 - iv. Depending on the situation, the Duty Chiefs should consider callback of off-duty specialty team members for additional resources. Requests for these resources are submitted to the Operations Chief of the activated IMT.
 - v. In Major Emergency Operations, routine responses, such as box alarms, are likely to be modified. Duty Chiefs make a case-by-case determination as to whether they respond to an incident or leave command with the Company Officer
- B. Disaster Operations
- i. In event of a sudden, catastrophic event which disrupts normal Dispatch and communications functions, Company Officers and Duty Chiefs automatically default to Disaster Operations. In Disaster Operations mode, Company Officers must initiate all actions identified in this guideline including:
 - a. Implementation of Facility Damage Control Plan
 - b. Status Reports (via Simplex , or other means possible)
 - c. Drive-by survey of first-due area
 - d. Incident prioritization
 - ii. In Disaster Operations, Duty Chiefs remain in their respective Battalion Headquarters, rather than respond to incidents. On-scene command remains with the Company Officer.
 - iii. Duty Chiefs should attempt to contact the Fire Operations Center (FOC).

5. PERSONNEL ACCOUNTABILITY REPORT

The Personnel Accountability Report (PAR) is conducted to determine the status of companies following a potentially damaging event. (*Diagram 4 – PAR status checklist*)

- A. Fire station/company PAR is conducted by the Battalion Duty Chief on the **Training 1**.
- B. If one of the Duty Chiefs is not able to assume his duties, a Company Officer at the Battalion headquarters station assumes those duties until relieved. Unless an additional Duty Chief is assigned to East Battalion, the Company Officer at the East BHQ should forward PAR information to C-6/South BHQ.
- C. During PAR of stations/companies, Duty Chiefs must account for all staffed apparatus, either by the station report or by separately checking with units that might be out of quarters. **Immediate follow-up should be initialized by Duty Chiefs for those units not answering PAR.**
- D. Subsequent PARs may be conducted to further ascertain the status of companies.

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- E. If an event occurs during normal work hours, the appropriate Assistant Fire Marshal (AFM) conducts a PAR of Deputy Fire Marshals (DFMs) to determine their status. PAR is conducted on **Training 1 (or designated alternate channel)** after the PAR of apparatus. The AFM reports the status of DFMs to the Battalion Duty Chief.

6. STATUS REPORTS

A. Major Emergency Operations

If a PAR is conducted, Status Reports are given by each station/apparatus/occupied District facility to their Battalion Duty Chief.

- i. Status Check: Immediately upon the activation of Major Emergency Operations mode, crews complete a status check of personnel and apparatus utilizing the "Facility Damage Control Plan." This information is relayed to the Duty Chief as a status report during PAR.
- ii. Status Report: Fire station status reports during PAR must be **brief, providing only pertinent, immediate, "need to know" information** in the following order (as provided on Company Officer Checklist). The actual verbal report is by **negative reporting**. **Only report those items that are not normal**, unit availability, and special comment information, if out of the ordinary.
 - a. Personnel: Minor injury, major injury, trapped, fatality.
 - b. Facility: Minor damage, major damage, doors stuck.
 - c. Power: Auxiliary power, no power.
 - d. Units Available: Engines, trucks, rescues, relief apparatus (indicate whether staffed.)
 - e. Special Comment: Briefly report fires and damage visible from station. **Do not comment unless important.**
 - f. If status is normal, respond: "Engine 67 available."
- iii. If structural damage prevents removal of apparatus from a station, personnel shall, if safety permits, retrieve turnouts, breathing apparatus, and portable radios. Determine what assistance is required for extrication of apparatus. Report availability and conditions to the Duty Chief on **Training 1**.
- iv. Following the preparation for PAR and status reports, stations, companies and facilities shall monitor dispatch for further frequency assignments from the FireComm.

B. Disaster Operations

If companies are unable to establish contact with FireComm or their Duty Chief, companies should consider themselves in the Disaster Operations mode.

7. DRIVE-BY SURVEY

One of the most important functions for emergency service personnel following a disaster is to evaluate the impact on departmental resources. This assessment may include observations of structural damages, flooding, injuries, access, fire load, water supply, status of critical resources (such as hospitals, power stations, etc.) and status of

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transportation capabilities with regard to both road accessibility and the operational capability of District equipment. Drive-by surveys are cursory procedures conducted to assess the scope of the problem and assist in identifying response priorities in a company's first response area. Following the completion of the Status Report, companies and DFMs should be prepared to conduct pre-planned drive-by surveys of their first response area, **if directed by the Duty Chief**.

When in Disaster Operations mode, Company Officers and DFMs should automatically initiate a Drive-by survey.

- A. **A rapid assessment of response areas to determine potential or actual life-threatening situations is essential. This assessment enables the department to prioritize incidents and concentrate resources in areas where life loss potential is greatest. Companies may have to bypass fires, collapsed buildings and other ongoing, non-life threatening emergencies to accurately assess their district for the highest life safety priority.**
- B. Drive-by survey status reports should be by **negative reporting**. Only those situations that are NOT normal are reported. Drive-by survey status reports should be communicated to the Battalion Duty Chief on **Training 1** unless otherwise designated.
- C. Assess "critical facilities," transportation, etc. (identified in pre-planning).
- D. Identify situations and potential resource requirements based on the drive-by survey. Communicate situation status (using negative reporting) and **priority needs only** to the Duty Chief, as soon as practical.
- E. Should the drive-by surveys indicate significant damage, a Duty Chief may determine a need to change the mode of operation.

NOTE: For earthquakes, significant after-shocks may require supplemental drive-by surveys.

- F. Walk-Ins: If citizens request assistance via direct arrival at a station, or by stopping a company during the drive-by survey, companies should render aid if possible. Companies **MUST** notify FireComm of their status by staying in service to be available to respond to higher priority calls; if there is no contact with FireComm, companies should attempt to notify their Battalion Duty Chief. Companies should log all calls. After the emergency phase, companies should contact FireComm for the assignment of incident numbers for these calls. Stations may experience an influx of civilians seeking medical attention and shelter. Triage is a critical factor. Serious injuries and illnesses should be treated to stabilize, with transport handled in the most expedient manner. Minor injuries should be directed to the nearest hospital. Persons seeking shelter should be directed to the nearest facility. Law Enforcement may be requested to assist in this area. **The main emphasis must be to keep citizens out of the Fire Stations.**

This includes groups of citizens volunteering to assist with response, either ad hoc or as members of Community Emergency Response Teams (CERTs). Stations should not become assembly points for community volunteers.

8. INCIDENT PRIORITIZATION

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During a major emergency in which the routine dispatch of resources cannot keep pace with the incident demand, requests for resources must be “triaged.” The following incident priorities have been established and should serve as a guideline for the assignment of resources:

INCIDENT PRIORITIES:

- A. *Priority One:* IMMEDIATE ATTENTION. Known life-safety risk and/or incidents with confirmed multiple victims/patients.
- B. *Priority Two:* Unknown life-safety risk or an incident involving minor injuries
- C. *Priority Three:* Involving property damage, alarms (except medical) or public assistance calls. These incidents receive resources when available.

9. STATION COMMANDERS

In Disaster Operations Mode, when additional staffing permits, the senior Company Officer on-duty in each operating station should assign a Station Commander. Station Commanders should operate in the duty office or reception area and the position must be staffed on a twenty-four (24) hour basis. This duty may be assigned to any employee, such as a TVF&R Volunteer, who is knowledgeable of Fire & Rescue Protocols.

The Station Commander is responsible for the following actions:

- A. Maintaining a “the Major Actions Log” (for incident documentation package).
- B. Compiling and distributing situation status information for the station.
- C. Inventorying and ordering supplies. Supply orders are placed through the Logistics Section at the FOC.
- D. Tracking incident responses and maintaining unit response rotation.
- E. Responding to citizen requests and questions.
- F. Providing periodic status reports, compiling and forwarding damage to the Battalion Duty Chief.
- G. Maintaining listings of hospitals and shelters (provided by the FOC).
- H. Assisting Company Officers as requested.

10. VOLUNTEER COMPANIES

- A. Major Emergency Operations
 - i. If tapped out, Volunteer personnel should tend to immediate needs of their families prior to response.
 - ii. Respond to their home station, if possible. Volunteers unable to respond to their home station should respond to the closest Tualatin Valley Fire & Rescue station.
 - iii. Assess the status of the station they respond to. In event of an earthquake, apparatus should be removed from the engine bays and, if safe to do so, parked on the station apron.
 - iv. Report availability and conditions to the Duty Chief on **Training 1**.
- B. Disaster Operations

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In event of a catastrophic event when normal communications are not functioning, Volunteers should tend to the immediate needs of their family – and then **automatically** report to their station or the closest TVF&R facility.

11. TEMPORARY DISCONTINUATION OF RESPONSE (NO RESPONSE)

- A. In event of severe weather, Duty Chiefs should consider the need to temporarily cease (and determine the criteria for safe resumption of) emergency response. Severe weather effects may include:
- i. High winds/flying debris
 - ii. Heavy rain
 - iii. Obstructed roads
 - iv. Flooding of streets
 - v. Poor visibility
- Hazmat/WMD Note:*** Duty Chiefs may direct companies/personnel to shelter-in-place as the most appropriate response.
- B. Once emergency responses have been terminated, Dispatch should maintain a record of all requests for response and establish a priority response list.
- C. If radio systems are inoperable, Company Officers and Duty Chiefs should use their best judgment, and consider local and regional conditions in determining when to cease operations.
- D. Upon receipt of orders to cease operations, units should complete current assignments as quickly as safety permits, and return to quarters, or if conditions necessitate, to the nearest available stations. All units report their status to their Duty Chief, who ensures that all units are accounted for and forward notification to the FOC.
- E. As a guide, sustained winds in the range of 40-60 mph are a likely threshold for initiating restrictions, as are specific hazards (e.g., falling trees, downed wires, etc.). Because conditions/hazards may vary locally and across the District, restrictions may vary as well.

12. INCIDENT MANAGEMENT ORGANIZATION (IMO) ACTIVATION

- A. Major Emergency Operations

Upon implementation of the Major Emergency Guidelines, the following Incident Management Organization (IMO) should be implemented:

- i. The IMT District Operations Chief reports to FireComm to provide direction for dispatching resources.
- ii. The Incident Commander of the on-duty IMT becomes the IMO's Incident Commander and reports to the Fire Operations Center (FOC) at TVF&R Administration. The Incident Commander may conduct a PAR of the on-call IMT members on ***Training 1***.

NOTE: The Incident Commander should begin this process immediately (not waiting until arrival at the FOC), but after PAR of companies and DFMs.

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- iii. The on-call IMT reports to the FOC and establishes the Incident Management Organization to begin initial operations (See Diagrams 2 and 3). If additional IMT members are needed, an "all-call" page should go out, as well as an announcement over **Training 1**.
NOTE: PIOs are part of the IMTs and should respond accordingly.
- iv. Off-duty IMTs should immediately begin monitoring **Training 1** and their pagers and be prepared to respond. If additional IMT members are needed at the FOC, an "all-call" page should be sent in addition to an announcement over **Training 1**.
- v. The Incident Commander is responsible for ensuring that appropriate TVF&R personnel are assigned to each activated city EOC to staff the Fire Branch under the Operations Section.

B. Disaster Operations

- i. **In case of a self-triggering event in which no radio or pager communications can be established, all IMT personnel and FOC support personnel, whether on or off-duty, shall immediately report to the FOC, North BHQ, or South BHQ – whichever is most accessible.**
- ii. If unable to reach the FOC – report to a Battalion Headquarters (West Linn, Beaverton, or Tualatin). If unable to reach a BHQ, staff should report to the nearest station.
- iii. BHQs are responsible for assigning staff to city EOCs.

13. EMERGENCY COMMUNICATIONS

A. FAILSOFT

In a major damaging event, the 800 MHz radio system may not function due either to equipment damage or volume overload. If components of the trunking system fail, the radios revert to *Failsoft mode*. In *Failsoft mode*, the system operates with limited talkgroups. There are only 10 talkgroups available, which necessitates the grouping of multiple agencies on one talkgroup. When operating in this mode, it is necessary to keep communications concise. Consult the "First-In-Guide" for the Failsoft worksheet.

B. SIMPLEX CHANNELS

In a worst case scenario, such as the failure of Failsoft, the only possible radio communications are via simplex channels. Simplex channels, (**Simplex 1 - 16**) have a very limited range. If companies have no other communications means, they should attempt to establish contact with their Duty Chief on **Simplex 1**. Under these circumstances, companies will likely be operating in the Disaster Operations mode. In the event of total trunked radio system failure, the Duty Chief at each BHQ (34 and 67) are to deploy human repeaters to preassigned locations within the District based on the human repeater communication plan.

C. OTHER COMMUNICATION RESOURCES

In Disaster Operations mode where normal communications have been lost, Company Officers and Duty Chiefs may need to use other forms of communication. Company Officers should attempt to communicate with their Duty

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Chief via 800 MHz, Failsoft mode, simplex channels, VHF / UHF or Ham radio.
BHQ's must contact the FOC as soon as possible via satellite phone if available.

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14. RECALL OF OFF-DUTY OPERATIONS PERSONNEL

A. Major Emergencies

- i. Normal communications (TeleStaff, paging, or individual calls) are used to recall off-duty personnel for most incident scenarios.
- ii. Tend to immediate family needs. Monitor home telephone, TVF&R's website, news media broadcasts and/or Emergency Alert System (Primary Station KXL 750 AM) channels for requests to return to duty, along with specific instructions and reporting locations.

B. Disaster Operations

In case of a sudden, catastrophic event with no communications (phone, radio, etc.), all off-duty personnel shall tend to immediate family needs and then report to their regularly assigned work site for assignment. If personnel cannot make it to their work site, they shall report to the closest appropriate District facility for assignment to that Battalion.

15. DOCUMENTATION AND RECORDKEEPING:

Accurate documentation is critical for reimbursement, should a disaster be declared. Information should be recorded for activities in order to complete incident reports, payroll, and other financial reports following the emergency. All managers and supervisors should attempt to document their major actions (such as incident response).

16. DISTRICT EMPLOYEE AND FAMILY WELFARE

- A. TVF&R employees are urged to prepare their families for a disaster and the ability to be self-sufficient for at least 72 hours, but preferably one to two weeks, including establishing out-of-area emergency contacts for themselves and family members. They should also be aware of a pre-designated emergency out-of-area contact system established by the District. This system is intended primarily for on-duty personnel and their families; although it is available to all staff, it should not replace individual arrangements. In short, District employees and their families should make every effort to establish their own preparedness and emergency communications resources, and should consider District resources (as with all government and other third-party resources) to be temporary and of last resort.
- B. The District is unable to provide emergency shelter for employees and their families, and cannot use fire stations for this purpose. In event of large-scale emergencies requiring opening of community shelters, TVF&R may attempt to open and staff "way stations" for District employees and their families at fire station community rooms (Stations 33, 51, 58, 60, 61, and 67) and the Training Center. These facilities may serve as temporary shelters of last resort but are not equipped for sleeping accommodations. Their principal function is to provide a temporary stopping point to obtain information and hospitality, and to pass on information on their status. The FOC is responsible for deploying resources to assist in management and support of these facilities to minimize impact on fire station emergency operations, and for providing updates for dissemination to District staff and family members on emergency conditions, District status, locations of community shelters, and other relevant information. FOC is also responsible for communicating to District personnel the status of their families at the shelters, as best as possible. **Fire station community rooms are not to be**

MAJOR EMERGENCY & DISASTER OPERATIONS

used as community centers or assembly points during emergencies, except by specific order of the Fire Chief.

17. FIRE STATIONS AS DONATION SITES

Fire stations should not be designated as food or other donation sites, except by order of the Fire Chief. The receipt of excessive food or other donations at fire stations may render the station unusable for operations activities. Contact the FOC for a list of appropriate locations. Crews should also be cautious about accepting food donated specifically for them. Food that has not been properly prepared or stored can incapacitate crews for extended periods.

MAJOR EMERGENCY OPERATIONS COMPANY OFFICER CHECKLIST

- ☐ Begin monitoring ***Dispatch*** and ***Training 1***.
 - Check the functionality of all communications assets (cell, radio, MDC)
- ☐ Prepare for PAR (conducted by a Duty Chief).
 - Prepare status report for PAR:
 - Station completes a status check of personnel, apparatus and station integrity to relay to Duty Chief during PAR. Use Facility Damage Control Plan.
- ☐ Status report:
 - Brief and concise – provide only pertinent/immediate “need to know” information.
 - **Negative reporting** – report only abnormal findings.
 - Personnel (injury, entrapment, fatality)
 - Facility (damage, inoperable bay doors)
 - Power (regular, auxiliary, none)
 - Apparatus (available and staffed)
 - Special Comment (visible damage or fire in local area)
- ☐ Conduct drive-by survey of first-response area, if directed by Duty Chief:
 - **Negative reporting** – report only abnormal findings.
 - Relay status reports to Duty Chief on ***Training 1***
 - Assess “critical” facilities:
 - Schools (if in session)
 - Hospitals/nursing homes
 - Government buildings
 - Bridges
 - Overpasses
 - HazMat storage facilities

INCIDENT PRIORITIES

- **Priority One** – IMMEDIATE ATTENTION – Known life-safety risk and/or multiple victims/patients.
- **Priority Two** – Unknown life-safety risk or minor injuries.
- **Priority Three** – Property damage, alarms (except medical), public assistance calls.

MAJOR EMERGENCY OPERATIONS DUTY CHIEF CHECKLIST

- ☐ Determine need for implementation of “Major Emergency” guidelines, based on:

- Resource needs cannot keep pace w/ demand.
- Either existing situation or emergency situation w/ potential (e.g., high wind).

NOTE: TVF&R’s policy is to conduct PAR of all companies following a distinguishable earthquake. Many other agencies do not follow such procedures, so Duty Chiefs may need to direct FireComm to have TVF&R companies switch to **Training 1** to standby for PAR.

- ☐ Direct FireComm to implement “Major Emergency” guidelines.
- ☐ Send “all-call” page (or direct FireComm to send “all-call” page) to on-call IMT (“On-call IMT report to FOC”).
- ☐ If possible, contact on-call Incident Commander of IMT and advise of situation.
- ☐ Monitor **Dispatch** and **Training 1**.
- Duty Chief responsibilities:
 - Conduct PAR of Companies on **Training 1**.
 - District Operations Chief – Respond to FireComm.
- ☐ Monitor PAR to ascertain status of companies. For any company not answering PAR, initiate follow-up action.
- ☐ Direct companies to conduct drive-by surveys of their first-due area. If drive-by surveys indicate significant damage, Duty Chiefs may need to change the operational mode. This should be done in consultation with the District Ops Chief at FireComm.

DISASTER OPERATIONS COMPANY OFFICER CHECKLIST

When spontaneous disaster happens and routine communications are not functioning, Company Officers should:

- ☐ Begin monitoring ***Dispatch, Simplex 1*** and ***Training 1*** (Check status of MDCs, landlines, and cell phones for functionality.)
- ☐ Prepare for PAR (conducted by your Duty Chief). Battalions to monitor ***Dispatch, Simplex*** and ***Training 1***. **If the radios are not in Failsoft and not functioning, complete the station status check and conduct the drive-by survey. All reporting will be conducted on Simplex 1. If radios are in Failsoft, expect a significant amount of system busies.**
- ☐ Prepare status report for PAR:
 - Station completes a status check of personnel, apparatus, and station integrity to relay to Duty Chief during PAR. Use “Facility Damage Control Plan”.
- ☐ Conduct Drive-by Survey of first-response are:
 - **Negative reporting** to Battalion Headquarters– report only abnormal findings.
 - Relay status reports to Battalion Headquarters on ***Simplex 1*** or ***Training 1*** if functioning.
 - Assess “critical” facilities:
 - Schools (if in session)
 - Hospitals/nursing homes
 - Government buildings
 - Bridges
 - Overpasses
 - HazMat storage facilities

INCIDENT PRIORITIES

- **Priority One** – IMMEDIATE ATTENTION – Known life-safety risk and/or multiple victims/patients.
- **Priority Two** – Unknown life-safety risk or minor injuries.
- **Priority Three** – Property damage, alarms (except medical), public assistance calls.

DISASTER OPERATIONS DUTY CHIEF CHECKLIST

- ☐ Determine need for implementation of “Disaster Operations” guidelines, based on:
 - Failure of the 9-1-1 system, the 800 MHz radio system, or both.
- ☐ Attempt to check status of FireComm.
- ☐ Monitor ***Dispatch*** and ***Training 1*** (***Simplex 1*** and ***Training 1***).
 - Default Duty Chief responsibilities:
 - Attempt a PAR of companies on ***Simplex 1*** or ***Training 1***.
 - Staff Battalion Headquarters (BHQ)
- ☐ Duty Chiefs should monitor incidents and activities in their Battalions. Attempt to assist each other in resource allocation, if communication and incident load allows. Duty Chiefs and their respective BHQs are the focal point for all activities in their Battalion.
- ☐ Duty Chiefs should attempt to keep the FOC briefed of their Battalions’ status and support requests through non-traditional communications (e.g., satellite phones, Ham Radio, human repeater communication plan, runners, etc.).
- ☐ When staffing allows, fire stations should have a Station Commander position staffed. This position is the contact point for that station’s status, resource needs, and staffing with their Duty Chief.
- ☐ Duty Chiefs coordinate the distribution of Specialty Team personnel to each Battalion. Off-duty Specialty Team personnel report to home station per policy.
- ☐ DFMs and the AFM are resources assigned to their respective Battalions. Once reconnaissance of the area is complete, DFMs may be directed to respond to the FOC or perform other emergency functions.

EARTHQUAKE PROCEDURES

In addition to the steps identified in the Major Emergency guidelines, the following earthquake-specific procedures should be followed. These guidelines should be initiated for every detectable earthquake.

INITIAL ACTIONS – DURING THE SHAKING:

- If indoors – stay inside!
 - Look for protective covering under desks/tables. If not available, crouch against an interior wall. Don't seek shelter in a doorway!
 - Stay away from glass and unsecured objects.
 - Drop, cover and hold on. Hold on to the desk or table to prevent it from moving.
- If outdoors:
 - Move away from buildings, trees, and power lines.
 - If driving, move to the roadside (clear of overpasses and power lines) and stop.

INITIAL AFTER-EARTHQUAKE ACTIONS – AFTER THE SHAKING:

- ☐ Assess personnel for injuries.
- ☐ Move apparatus out of the bay.
- ☐ Monitor **Dispatch** for announcement of fire station PAR and situation status. PAR is conducted on **Training 1**. Check status of communications devices: cell, radios and MDC.
- ☐ Assess the station and immediate area for damage and safety considerations utilizing the Facility Damage Control Plan.
- ☐ Shut off utilities if necessary. Only shut off natural gas if the smell of gas is detected.
- ☐ Determine if the station is on normal or auxiliary power.
- ☐ Check telephones to ensure that receivers are in place.
- ☐ If no announcement is received from FireComm, contact should be initiated by the Company Officer to FireComm by radio. If FireComm does not respond, contact the Duty Chief. If unable to establish contact, begin reconnaissance of the first-in area and proceed in Disaster Operations Mode.

FACILITY DAMAGE CONTROL CHECKLIST TEMPLATE

Your Location: _____

Last Updated On: _____

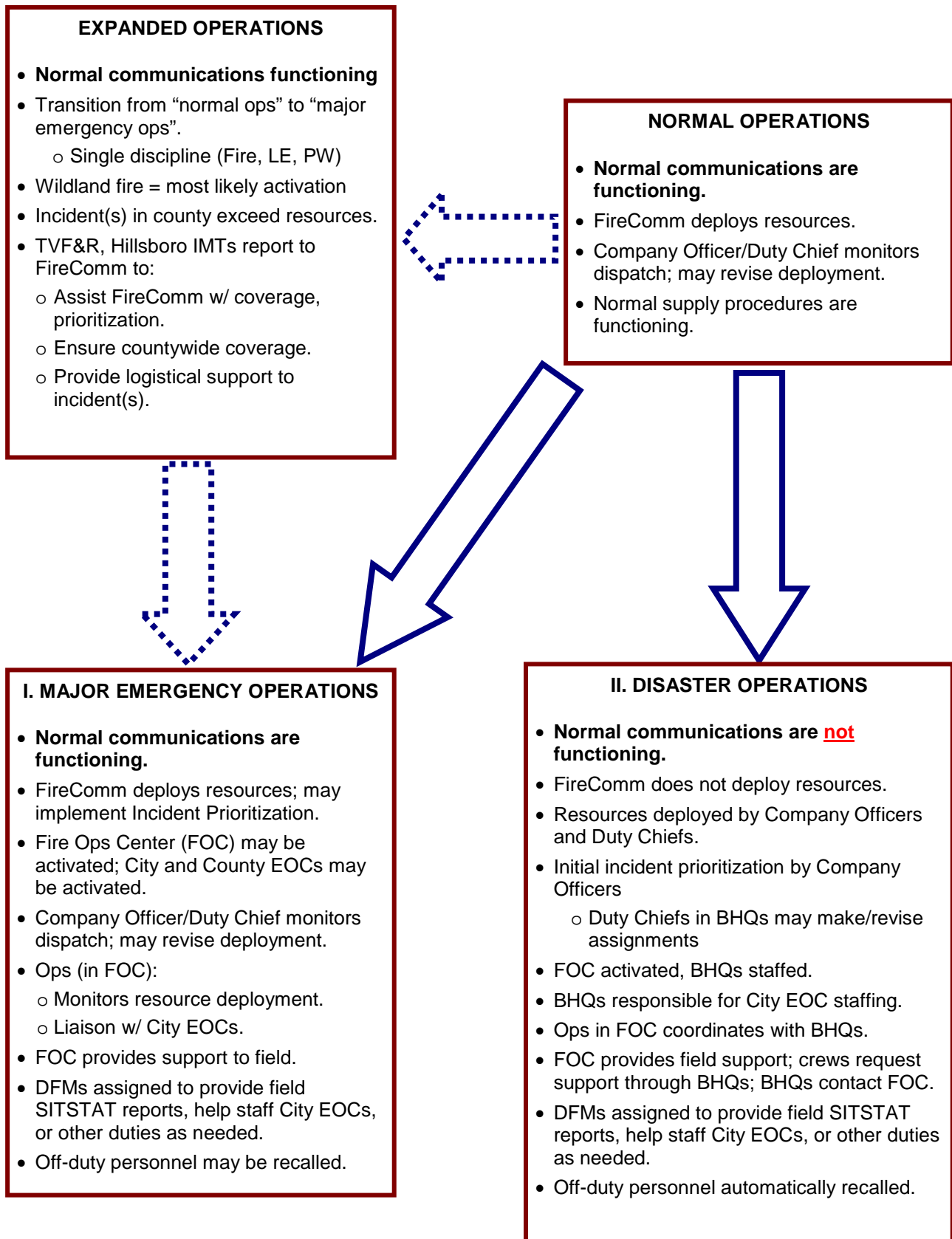
- ☐ This is a Facility Damage Control Plan for [Your Location].
- ☐ Account for personnel.
 - Check the status of all personnel located at the facility.
- ☐ Perform structural survey of the facility.
 - Check the status of the facility by surveying for cracks and other structural damage.
 - Check apparatus bay walls and floors, if appropriate. Check heating system for leaks and stability.
 - Check if utilities serving the facility have become compromised.
 - Water shut off – locate and check for damage and leaks.
 - Gas meter – locate and check for damage and leaks.
 - Electrical power – locate and check for damage.
 - Back up generator – if no power, determine if operable.
- ☐ Perform apparatus check.
 - Check all apparatus for readiness.
 - If earthquake, move outside, if appropriate to your facility.
 - Add additional equipment to apparatus, if appropriate. Examples of such items are:
 - Hard suction
 - Extra hose
 - Batteries
 - Food
 - Water
 - Extra clothing
- ☐ Assess communication availability.
 - Check functionality of the following communication equipment, as appropriate:
 - Telephones / BHQ and FOC Sat Phones)
 - Cell phones
 - 800 MHz radios (facility, apparatus, and portables)
 - VHF radios (facility, apparatus, and portables)
 - MDCs in apparatus and in facility

FACILITY DAMAGE CONTROL CHECKLIST TEMPLATE (CONT.)

- ☐ Assign a firefighter to monitor **Training 1**, or if the 800 MHz Trunking System is not working, **Simplex 1** for information, if appropriate.
- ☐ Determine hazardous areas.
 - Check all hazardous areas in the facility.
 - List the areas and what to look for.
 - Barricade access, if appropriate.
- ☐ Determine safe areas.
 - List all safe areas in the facility (e.g., community rooms, meeting rooms).
- ☐ Check status of emergency power.
 - Facility generator location, source of fuel, and damage/functionality.
 - Check for leaks and tank levels, as appropriate.
- ☐ Assess condition of on-site fuel tanks.
 - Location of tanks on-site and fuel pump functionality, if appropriate.
 - Consider possible power alternatives to operate pumps if needed.
- ☐ Assess status of emergency provisions.
 - Inventory emergency food and water supply and note location.
 - Place on apparatus for one day, if appropriate to your facility, and/or apparatus.
- ☐ Other facility specific items, such as:
 - Meeting and community rooms stocked w/ paper and other supplies.
 - List of personnel that are in the facility and accountability of them.
 - Drive-by surveys located in each apparatus able to use them as well as in the Facility Damage Control binder in the office.
 - If the facility is severely damaged and not usable, consider alternative locations and list them.
 - Make contacts with alternative sites and pre-setup for the use of the facility, in case it is needed.

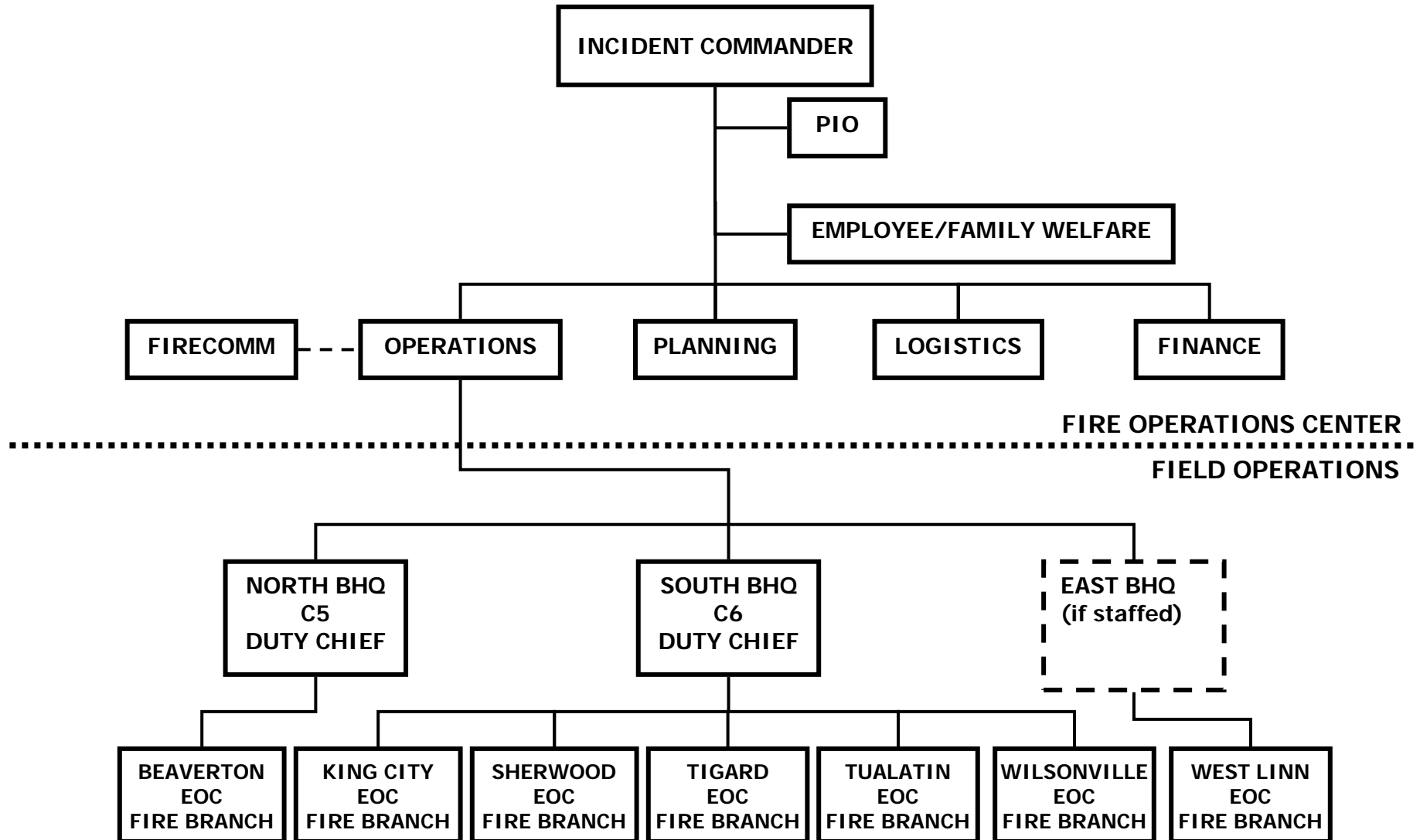
Diagram 1

Modes of Operation



MAJOR EMERGENCY/DISASTER OPERATIONS ORGANIZATION CHART

Diagram 2



MAJOR EMERGENCY/DISASTER OPERATIONS INTERAGENCY OPERATIONS

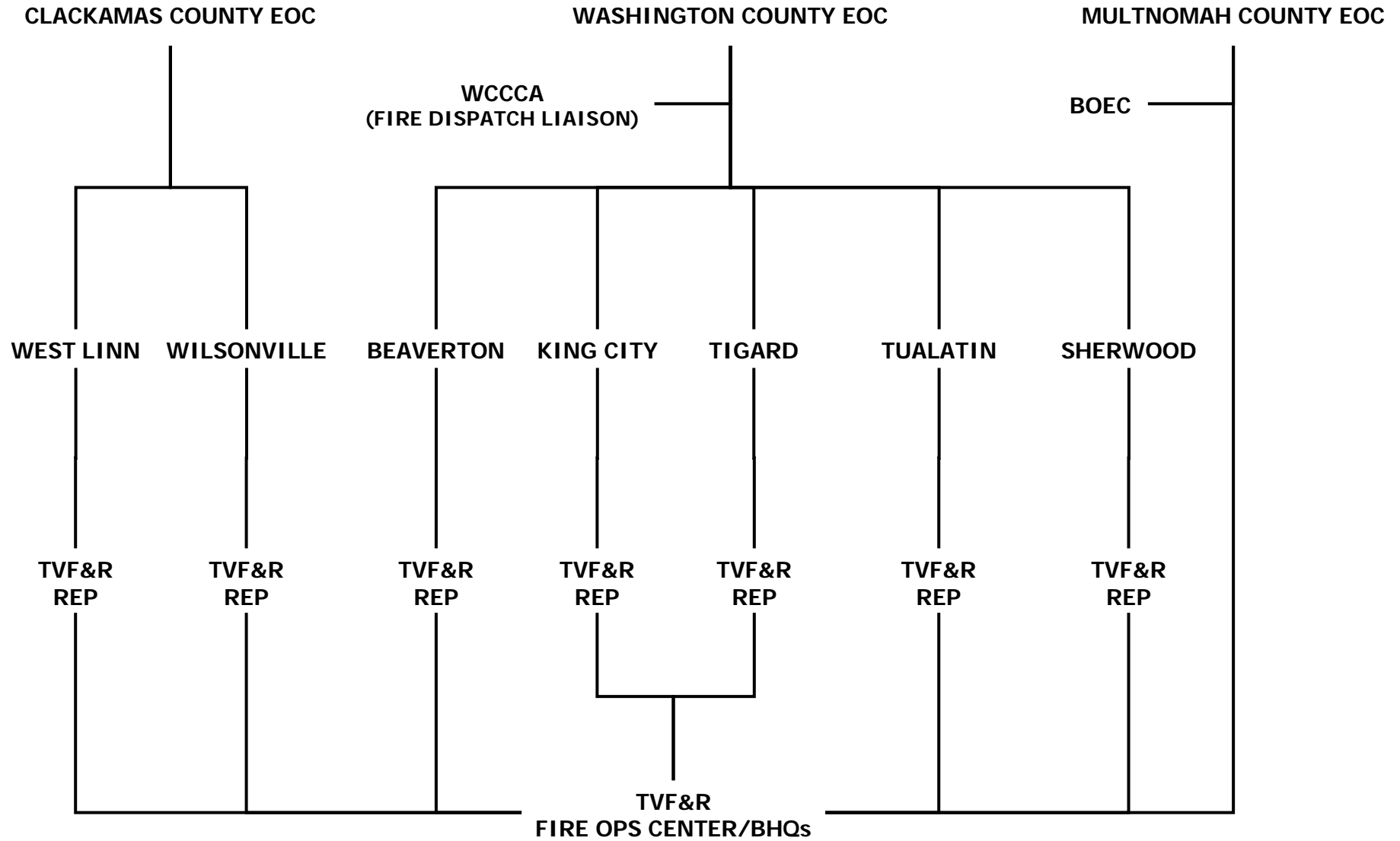


Diagram 4

PAR/STATUS CHECKLIST

COMPANY	STATUS				COMPANY	STATUS			
Station 53	<input type="checkbox"/> Normal	Problem:	Personnel		Station 67	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 60	<input type="checkbox"/> Normal	Problem:	Personnel		Station 68	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 61	<input type="checkbox"/> Normal	Problem:	Personnel		Station 69	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 62	<input type="checkbox"/> Normal	Problem:	Personnel		Admin	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 64	<input type="checkbox"/> Normal	Problem:	Personnel		North Division	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 65	<input type="checkbox"/> Normal	Problem:	Personnel		Station 368	<input type="checkbox"/> Normal	Problem:	Personnel	
			Facility					Facility	
			Power (Aux?)	Units Avail				Power (Aux?)	Units Avail
Station 66	<input type="checkbox"/> Normal	Problem:	Personnel		COMBINATION VOLUNTEER STATIONS				
			Facility		<input type="checkbox"/> Station 351 Staffed - # of Vols:				
					<input type="checkbox"/> Station 362 Staffed - # of Vols:				

PAR/STATUS CHECKLIST

COMPANY		STATUS			COMPANY			STATUS		
SOUTH BATTALION										
Station 33	<input type="checkbox"/> Normal	Problem:	Personnel	Station 52	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
Station 34	<input type="checkbox"/> Normal	Problem:	Personnel	Station 56	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
Station 35	<input type="checkbox"/> Normal	Problem:	Personnel	Station 57	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
Station 50	<input type="checkbox"/> Normal	Problem:	Personnel	Station 58	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
Station 51	<input type="checkbox"/> Normal	Problem:	Personnel	Station 59	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
Training Center	<input type="checkbox"/> Normal	Problem:	Personnel	Station 359	<input type="checkbox"/> Normal	Problem:	Personnel			
		Facility				Facility				
		Power (Aux?)	Units Avail			Power (Aux?)	Units Avail			
South Division	<input type="checkbox"/> Normal	Problem:	Personnel	VOLUNTEER/COMBINATION STATIONS						
		Facility		<input type="checkbox"/> Station 333 Staffed - # of Vols:						
		Power (Aux?)	Units Avail	<input type="checkbox"/> Station 352 Staffed - # of Vols:						
				<input type="checkbox"/> Station 351 Staffed - # of Vols:						
				<input type="checkbox"/> Station 358 Staffed - # of Vols:						

INCIDENT COMMUNICATIONS PLAN		INCIDENT NAME: Disaster Communications		DATE/TIME PREPARED:	OPERATIONAL PERIOD:
UTILIZATION:					
TYPE	CHANNEL/#	FUNCTION	ASSIGNMENT	REMARKS	
Simplex 1	A - 09 Zone A Channel 9	Crews to Human Repeaters	All field units to Human Repeaters	Crew communicates via Simplex 1	
Simplex 2	A - 10 Zone A Channel 10	North Battalion Human Repeaters to NBHQ	Burntwood, Bull Mt., Skyline, Lincoln Tower and Cooper Mt.	Human repeater receives traffic on Simplex 1 and Human Repeater relays to NBHQ on Simplex 2	
Simplex 3	A - 11 Zone A Channel 11	South Battalion Human Repeaters to SBHQ	Canterbury, Parrett Mt., Pete's Mt., Oregon City	Human repeater receives traffic on Simplex 1 and Human Repeater relays to SBHQ on Simplex 3	
5. PREPARED BY (LOGS/COMMUNICATIONS UNIT):			ICS-205 PAGE _____ OF _____		

Human Repeaters (3 for each location) will be deployed from:
FOC, Station #34 (SBHQ) and Station #67 (NBHQ)
Backpacks, spare portables and maps are available at these locations

[illegible]

APPENDIX B

VIII. Emergency Communications

TVF&R relies on three principal modes of communications for everyday and emergency operations: 800-MHz trunked radio, telephone (landline, cellular/push-to-talk), and network-based functions (PDAs, e-mail, computer-aided dispatch, shared access to data, Internet, and Intranet). Disruption of any of these components negatively impacts operations; disruption of more than one requires emergency procedures and substantially limits centralized command and coordination. TVF&R's emergency communications structure is built on several components:

TVF&R utilizes the joint CCOM / WCCCA 16 channel, 7 site simulcast system 800 MHz trunking system. If this system were to fail, it tends to be in a set of cascading, predictable events. These include (in order from least to most severe):

- A. **Site specific trunking** – Connection to the trunking controller has been lost, most likely from microwave misalignment or failure. The radio network is still functional, however is not simulcast District wide. As an example, radios in Wilsonville cannot be heard at the FOC.
 - B. **Failsoft** – Failure of the both redundant trunking controllers has occurred. Each WCCCA discipline is pre-assigned 3 channels, one of which is a primary Dispatch channel. This is automatically controlled by the software in the radio and will indicate to the user that the system is in FAILSOFT with a message and a tone on the radio. When the system resets, the system is totally unavailable for 13 seconds.
 - C. **Reversion to conventional repeater** – All 16 radios at each radio site revert to a 800 MHz conventional repeater when connection to other sites (via microwave) is lost AND the trunking controller and site controllers fail.
 - D. **Total system and site failure** – Loss of trunking controllers, site controllers, microwave and ALL power OR physical loss to EVERY radio site in the District's service area. (Cedar Hills, Canterbury, Burntwood, Pete's Mountain, Hillsboro and Parrett Mountain.
- *Amateur radio*: the FOC has pre mounted antennas and a complete station that allows communication with city and county EOCs. Equipment for fixed antennas and internal connections will be installed in BHQ's as they are remodeled or rebuilt with the Capital Bond project. Amateur radio also provides one of three legs for communication with TVF&R's remote contact in Austin for the Employee/Family Welfare function.
 - *Satellite phones*: the FOC, each Duty Chief, the IMT Vehicle and both Hazardous Materials response vehicles have mobile satellite phones that can operate in handheld or vehicle mode; each BHQ has supplemental equipment that allow the satellite phones to be used indoors with an attached cordless phone.

APPENDIX C

SECTION TWO – COMMON MANAGEMENT FUNCTIONS

I. Organization and Responsibilities

Division responsibilities

TVF&R's divisions have standard responsibilities for daily and emergency operations. Division responsibilities enumerated in this plan apply before, during, and after emergencies that affect District operations. *All* divisions are responsible for some basic functions:

- Maintaining safety and preparedness in their respective workplaces
- Maintaining ability to contact and reassign staff, based on needs for situation at hand
- Identifying and prioritizing critical functions for different scenarios and operational levels
- With Information Technology, identifying and implementing appropriate backup procedures for critical data
- Staffing FOC, as needed, during exercises and activations; some divisions are responsible for staffing specific functions, as noted

The following responsibilities are specific to the listed divisions:

A. Logistics

1. Emergency Management

- Develop and maintain appropriate District plans for hazard mitigation, preparedness, response, and recovery; ensure compliance with applicable standards
- With Operations and Public Information Officer, maintain internal notification capability
- Maintain current District remote contact information with City of Austin EOC
- Maintain equipment, training, and staffing pattern for effective FOC functions
- Establish and maintain functional alternate FOC
- Assist Finance in obtaining eligible reimbursement for Stafford Act declarations
- Coordinate post-incident analyses and after-action reports for major events

2. Communications

- Identify / implement emergency communications needs, develop and implement disaster communications plan
- Identify, test and inventory emergency communications assets in the FOC, BHQ's, MCC and Communications loft
- Maintain coordination with WCCCA to assure logistical needs for the core trunking radio sites are maintained.
- Provide any technical support to end users with Mobile Data Computers
- Staff Communications Unit during FOC activations, including the COML position at North and South BHQ's.

3. Facilities

- Identify and maintain minimum levels of critical supplies
- With Finance, identify critical suppliers, assess capability to maintain delivery during emergencies, and establish emergency procurement capability

- Maintain critical communications functions during emergencies
- Maintain capability for emergency seismic damage assessment of District facilities
- Replenish inventory to normal levels as soon as practical
- Staff Facilities Unit for FOC activations, as needed
- With Finance, ensure appropriate documentation of procurement and inventory replenishment for potential external reimbursement

4. Fleet

- Identify and maintain minimum levels of critical supplies
- With Finance, identify critical suppliers, assess capability to maintain delivery during emergencies, and establish emergency procurement capability
- Identify and address alternate-site needs for temporary fleet servicing, as needed
- Identify and address needs for delivering critical fleet maintenance during emergencies
- Replenish inventory to normal levels as soon as practical
- Staff Ground Support Unit for FOC activations, as needed
- With Finance, ensure appropriate documentation of procurement and inventory replenishment for potential external reimbursement

5. GIS

- Maintain capability to meet incident mapping needs during FOC activation

6. Information Technology

- Help other divisions identify and institute appropriate backup procedures for critical data
- Identify alternate-site needs for temporary system operations, as needed
- Set up and maintain computer operations in FOC and BHQs during activations
- Maintain critical information technology functions during emergencies
- Recover from IT disruptions with minimal data loss and operational downtime

7. Supply

- Identify and maintain minimum levels of critical supplies
- With Finance, identify critical suppliers, assess capability to maintain delivery during emergencies, and establish emergency procurement capability
- Identify and address alternate-site needs for temporary supply warehousing, as needed
- Identify and address needs for maintaining critical resupply during emergencies
- Replenish inventory to normal levels as soon as practical
- Staff Supply Unit for FOC activations, as needed
- With Finance, ensure appropriate documentation of procurement and inventory replenishment for potential external reimbursement

B. Community Services

- Identify and maintain contact lists for local and regional media, and public information officers from local and state governments and cooperating agencies
- With Public Education, Emergency Management, tvfr.com, and other programs, provide information to the public to allow them to prepare for and minimize effects of emergencies
- Develop pre-scripted messages for public warning, public safety, and other emergency public information, as described in Emergency Public Information section

- Staff Emergency Public Information function during FOC activations
- Coordinate messaging and division of labor with Employee/Family Welfare function (if activated) for communications to District employees during major events.
- Maintain studio operations, as needed, during FOC activations
- Assist in generating Emergency Alert System messages, as needed, as described in Emergency Public Information section
- Actively participate in local/regional Joint Information System, including contributing staff to a county or regional Joint Information Center, as needed and if available

C. Finance

- With pertinent divisions, pre-establish emergency procurement capability with critical suppliers
- Ensure capability to generate and distribute base payroll during emergencies
- Maintain capability to activate and distribute spare purchasing cards, to increase spending limits according to procedures, and disburse petty cash during emergencies
- Maintain capability to secure emergency funds for large capital outlays
- Coordinate process for recovery of eligible incident costs as available

D. Fire Prevention

- Maintain capability to assist, as needed, in seismic damage assessment for District facilities
- Maintain capability to identify and address emergent life-safety issues (e.g., shelter safety)
- With Community Services, Emergency Management, tvfr.com, and other programs, provide public education to foster community preparedness
- Contribute to staffing pool for City EOCs during emergency operations
- Coordinate with and help staff, as directed, FOC and BHQs during emergency operations

E. Human Resources

- Maintain and ensure availability of staffing rosters
- Maintain and ensure availability of employee emergency contact information
- Maintain security of personnel files
- In coordination with regional HR counterparts, establish groundwork for sharing and exchanging staff during disasters
- Staff Employee/Family Welfare function in FOC, as needed, during exercises and activations
- Provide/coordinate behavioral health services, as needed, for employees during recovery

F. Operations

- Develop and maintain capability to ensure safe minimum staffing levels during emergencies
- Develop process to initiate non-routine EMS protocols, with input from Physician Advisor
- With other divisions, identify and ensure support for functions critical to emergency operations
- Maintain security of incident documentation
- With Human Resources, ensure current duty roster is available for FOC and BHQ activations
- Provide emergency response within applicable District guidelines
- Provide point of coordination with Chaplains for Employee/Family Welfare
- Provide specialized staffing to Employee/Family Welfare, as needed (OHS/Wellness)
- Staff BHQs, as needed, during emergency operations

- Assist in development and promulgation of post-incident analyses and after-action reports

G. Training

- Provide staffing to BHQs (if activated) and FOC
- Maintain capability to adjust training schedules, including cancelation of major activities, on little or no notice, and to communicate those changes to internal and external participants
- Assist in development and promulgation of post-incident analyses and after-action reports

V. Continuity of Operations

TVF&R is a branch of local government with direct taxing authority, a public safety agency, and it operates a State Hazardous Materials Response Team (State Team #9). TVF&R is also an employer of approximately 500 paid staff and volunteers. It is TVF&R's policy and responsibility to maintain continuity of critical functions even under severe conditions.

A. Continuity of authority

- Board succession policy and delegation of emergency authority (as defined in Board Policy)
- Clear line of authority and succession for District operations (unless otherwise specified):
 - 1) Fire Chief
 - 2) Assistant Chief Duyck
 - 3) Assistant Chief Morrow
 - 4) Assistant Chief Hale
 - 5) On-duty IMT Incident Commander (if not otherwise listed; must be TVF&R employee)
 - 6) Highest ranking non-sworn officer for non-operational matters; highest ranking sworn officer for operational matters (if not otherwise listed)
- Emergency purchasing authority (as defined in TVF&R Purchasing Policies & Procedures)

B. External functions

- Emergency response for life-threatening and potentially life-threatening incidents
- Hazardous materials response within the District, and coverage for State Team #9 area as possible (the hazmat team is a District resource first; if the team is unavailable for out-of-District response, the State Fire Marshal's Office is responsible for providing coverage)
- Centralized control of District resources (as needed) through FOC
- Records maintenance: secure storage, access control, and tracking for EMS medical records, incident reports, and investigations
- Fire investigation

C. Internal functions

- Critical safety functions for TV&R personnel: infection control, immunization and chemoprophylaxis, safe staffing levels
- Critical support for emergency response: vehicle, equipment, and facility maintenance, critical supplies
- Ability to meet and distribute (via direct deposit) semimonthly payroll for all employees
- Fiscal integrity: maintenance of necessary procedures and recordkeeping, sufficient cash and line of credit to maintain critical funding during major disruption
- Maintenance of critical documents, through direct custody and safeguarding and/or through duplication and safekeeping with trusted parties: contracts and other agreements, personnel files and payroll information, legal documents, public meeting records

Appendix D

List of interviewees

Norvin Collins
Battalion Chief – Team 4 Plans Chief
Tualatin Valley Fire and Rescue
Norvin.collins@tvfr.com
(503) 649-8577

Steve Forster
Fire Marshal – Team 4 Plans Chief
Tualatin Valley Fire and Rescue
Stephen.forster@tvfr.com
(503) 356-4729

Larry Hatch
Assistant Director
Washington County Consolidated Communications Agency
Larry.hatch@wccca.com
(503) 629-0111

Joe Kuran
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Appendix E

Major Emergency / Disaster Operations Survey Questions

1. Are you aware of the fire rescue protocol for major emergency / disaster operations?
2. Based on the fire rescue protocols, do you understand your role in the event of a major emergency?
3. Based on the fire rescue protocols, do you understand your role in the event of a disaster?
4. Based on the fire rescue protocols, do you understand the disaster communications plan?
5. When is the last time you had training on the major emergency / disaster operations plan?

2005

2006

2007

2008

2009

6. What elements are missing from the current protocol that would enhance major emergency / disaster operations?

Training and exercises

Equipment

Updated checklists

Human repeater plan

7. Do you have any suggestions for ongoing training relative to the plan?

Appendix F

Survey Results for the Major Emergency / Disaster Operations Survey Questions

1. Are you aware of the fire rescue protocol for major emergency / disaster operations?
 Yes 230 (98%) No 5 (2%)

2. Based on the fire rescue protocols, do you understand your role in the event of a major emergency?
 Yes 159 (68%) No 76 (32%)

3. Based on the fire rescue protocols, do you understand your role in the event of a disaster?
 Yes 197 (84%) No 38 (16%)

4. Based on the fire rescue protocols, do you understand the disaster communications plan?
 Yes 68 (29%) No 167 (71%)

5. When is the last time you had training on the major emergency / disaster operations plan?
 2005 – 17 (7%)
 2006 – 23 (10%)
 2007 – 38 (29%)
 2008 – 115 (48%)
 2009 – 7 (2%)
 Cannot remember – 35 (14%)

6. What elements are missing from the current protocol that would enhance major emergency / disaster operations?
 Training and exercises – 96 (41%)
 Equipment – 4 (2%)

Updated checklists – 88 (27%)

Human repeater plan – 65 (28%)

7. Do you have any suggestions for ongoing training relative to the plan?

This was an open ended question that revealed a multitude of responses that largely requested more frequent, hands on practical exercises that could be easily accessed from the intranet, DVD or presented in quarterly company officer in service workshops.